

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Susan M. Duncan

Attorney Docket No. ADAP-1-1002

Serial No.: 09/881,856

Group Art Unit: 2859

Filing Date: June 13, 2001

Examiner: Reis, Travis M.

Title: SPACE CONFIGURATION DESIGN TOOL

**APPLICANT'S APPEAL BRIEF**

Seattle, Washington

August 16, 2006

25315

CUSTOMER NUMBER

ADAP-1-1002/APBRF

BLACK LOWE & GRAHAM<sup>LLC</sup>



701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

# TABLE OF CONTENTS

I.	REAL PARTY IN INTEREST .....	1
II.	RELATED APPEALS AND INTERFERENCES.....	1
III.	STATUS OF THE CLAIMS .....	1
IV.	STATUS OF AMENDMENTS .....	2
V.	SUMMARY OF THE INVENTION.....	2
VI.	ISSUES PRESENTED .....	5
VII.	GROUPING OF CLAIMS .....	6
VIII.	ARGUMENT .....	7
A.	CLAIMS 1, 14, 19-22, 25, 28 AND 33 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(a) .....	7
1.	<i>References Relied Upon For Rejection</i> .....	7
2.	<i>The Claims Were Improperly Rejected</i> .....	8
B.	CLAIMS 3-6, 8, 9, 11-13, 15, 16, 18, 22, 26, 31 AND 32 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(a) .....	11
1.	<i>References Relied Upon For Rejection</i> .....	11
2.	<i>The Claims Were Improperly Rejected</i> .....	12
C.	CLAIMS 10 AND 17 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(a) .....	13
D.	CLAIMS 35 - 38 WERE IMPROPERLY REJECTED UNDER 35- 38 U.S.C. § 103(a) .....	14
E.	THE INVENTION IS NON-OBVIOUS IN VIEW OF SECONDARY CONSIDERATIONS.....	15

1. <i>The Declarations Constitute Proper Evidence of Secondary Considerations</i> .....	15
2. <i>The Declaration of Susan M. Duncan Establishes Commercial Success of the Claimed Invention</i> .....	16
3. <i>The Invention Satisfies a Long-Felt Need</i> .....	18
<b>IX. CONCLUSION</b> .....	<b>22</b>
<b>Appendix A—Claims on Appeal</b> .....	<b>23</b>
<b>Appendix B—Bobrick</b> .....	<b>30</b>
<b>Appendix C—Declaration of Susan M. Duncan</b> .....	<b>32</b>
<b>Appendix D—Declaration of Sandra Hartje</b> .....	<b>38</b>
<b>Appendix E—Declaration of Michael Miller</b> .....	<b>42</b>
<b>Appendix F—Declaration of Louis S. Tenenbaum</b> .....	<b>46</b>
<b>Appendix G—Declaration of Rex J. Pace</b> .....	<b>51</b>

## TABLE OF AUTHORITIES

### CASES

<i>Caldwell v. United States</i> , 481 F.2d 898 (Ct. Cl. 1973) .....	18
<i>Demaco Corp. v. F. Von Langsdorff Licensing, Ltd.</i> , 851 F.2d 1387, 1394 (Fed. Cir. 1988).....	17, 18
<i>Hybritech, Inc. v. Monoclonal Antibodies, Inc.</i> , 802 F.2d 1367, 1379 (Fed. Cir. 1986).....	15
<i>In re Dembiczak</i> , 175 F.3d 994 (Fed. Cir. 1999) .....	10
<i>In re Deminski</i> , 796 F.2d 436 (Fed. Cir. 1986).....	8
<i>In re Fritch</i> , 972 F.2d 1260, 1266 (Fed. Cir. 1992).....	10
<i>In re Mills</i> , 916 F.2d 680 (Fed. Cir. 1990).....	10
<i>In re Vaack</i> , 947 F.2d 488, 493 (Fed. Cir. 1991) .....	8
<i>In re Wilson</i> , 424 F.2d 1382.....	8
<i>Markman v. Lehman</i> , 987 F. Supp 25, 43 (D. D.C. 1997).....	18
<i>Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH</i> , 139 F.3d 877, 884 (Fed. Cir. 1998).....	18
<i>Northern Telecom, Inc. v. Datapoint Corp.</i> , 908 F.2d 931 (Fed. Cir.), <i>cert. denied</i> , 498 U.S. 920 (1990).....	10
<i>Ryko Mfg. Co. v. Nu-Star, Inc.</i> , 950 F.2d 714, 719 (Fed. Cir. 1991).....	17
<i>Sjolund v. Musland</i> , 847 F.2d 1573 (Fed. Cir. 1983).....	18

### STATUTES

35-38 U.S.C. § 103(A) .....	14
-----------------------------	----

### REGULATIONS

M.P.E.P. § 706.02(j) .....	8
----------------------------	---

## PATENT REFERENCES

U.S. Patent 4,250,642 (Riehle) .....	1
U.S. Patent 4,276,695 (Stansbury).....	1, 11
U.S. Patent No. 1,625,041 (Marshall).....	1

## **I. REAL PARTY IN INTEREST**

The real party in interest in the pending patent application is ADaptations, inc., a privately-held corporation having a principal place of business at 227 Bellevue Way NE, PMB 694, Bellevue, Washington 98004-5721.

## **II. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences known to appellant or appellant's counsel that will directly affect, be directly affected by, or have a bearing in the Board's decision in the pending appeal.

## **III. STATUS OF THE CLAIMS**

Claims 1, 3-6, 8-22, 25, 26, 28 and 31-38 are currently pending in the application and are at issue in this appeal. Claims 1, 3-6, 8-22, 25, 26, 28 and 31-38 have been rejected.

In a Final Office Action dated May 4, 2006, all of the claims were rejected under 35 U.S.C. § 103(a) in view of various combinations of prior art references.

Claims 1, 14, 19-22, 25, 28, 33-35, 37 and 38 were finally rejected under 35 U.S.C. § 103(a) as being unpatentable over the drawing template of Bobrick (Appendix A) in view of U.S. Patent No. 1,625,041 (Marshall).

Claims 3-6, 8, 9, 11-13, 15, 16, 18, 22, 26, 31, 32 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bobrick in view of Marshall and U.S. Patent 4,276,695 (Stansbury).

Claims 10 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bobrick in view of Marshall, Stansbury, and U.S. Patent 4,250,642 (Riehle).

#### IV. STATUS OF AMENDMENTS

No amendments have been filed since the Examiner's final rejection.

#### V. SUMMARY OF THE INVENTION

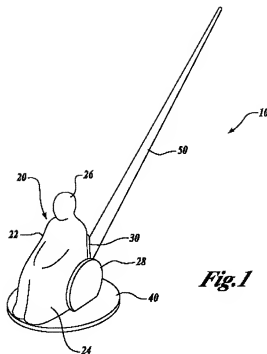
The invention is a visualization tool used for designing floor plans to accommodate wheelchairs. The tool includes a three-dimensional member shaped as a human in a wheelchair secured to a circular base representing the turning radius of the wheelchair. The tool is scaled for use in architectural drawings. A wand secures to the tool to allow movement of the tool along hallways, through doors, etc., on a proposed floor plan without substantially impeding viewing of the underlying floor plan.

Claim 1, discussed for purposes of illustration, reads as follows.

1. A design tool for use in association with a design plan having spaces of a known scale for functional and space planning, comprising:

- a three-dimensional member shaped as a human seated in a wheelchair, the member scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of the design plan, and
- a three-dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair to visually illustrate the feasibility of movement of the wheelchair in a space represented by the design plan.

The preferred design tool of claim 1 is shown in Figure 1 (reproduced below) in the pending application and is indicated by reference number 10. The claim requires that the design have several aspects, including “a three- dimensional member shaped as a human seated in a wheelchair.” In Figure 1, the three-dimensional Figure is indicated by reference number 20. Claim 1 also requires “a three dimensional base extending downwardly and outwardly from the three-dimensional member.” The base is indicated by reference number 40 in Figure 1.



Claim 1 requires that the three-dimensional member be scaled to a known scale of a design plan in order to accurately show movement within the design plan. The base is also scaled to a “space envelope desired for movement of a wheelchair.” The three dimensional member and base cooperate to enable a user to visualize interaction of a person in a wheel chair with a proposed floor plan. As explained in the specification, base is “scaled to indicate a turning radius to imitate the turning radius of a wheelchair.” p. 4, 21-23.

Claim 3, which depends on claim 1, recites “a wand extending from the [three-dimensional] member in operation of the design tool. The wand is indicated in Figure 1, by reference number 50. The specification explains that the wand “provides another way for the user to maneuver the icon figure and base should holding and pushing the icon figure be inadequate.”



Figure 6 (reproduced below) and claim 35 illustrate a method for using the design tool.

Claim 35 reads as follows:

35. A method for operating a three-dimensional tool in association with a design plan having spaces of a known scale for functional and space planning, comprising:

selecting a tool having a three-dimensional base including a peripheral edge shaped to coincide with a scaled space envelope appropriately sized to the scale of the design plan to allow accurate representation of the movement of a support device used by persons with disabilities and the aging population in a space represented by the design plan;

positioning the tool within the spaces of a known scale of the design plan;

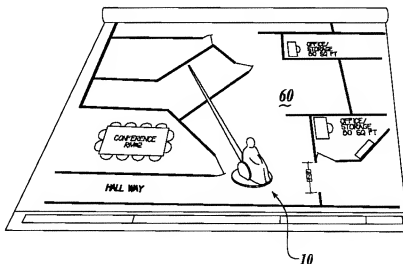
manipulating the tool within the spaces of a known scale of the design plan to visually illustrate the feasibility of movement within the spaces of a known scale in light of the size of the represented support device; and

determining the size of the open spaces of a known scale of the design plan necessary to allow movement of the support device used by persons with disabilities and the aging population based on evaluating the visual illustration of the feasibility of movement within the spaces of a known scale in light of the size of the represented support device.

Claim 35 requires the use of a tool having “a three-dimensional base including a peripheral edge shaped to coincide with a scaled space envelope appropriately sized to the scale of the design plan.” Claim 35 further requires (1) “manipulating the tool within the spaces of a known scale of the design plan to visually illustrate the feasibility of movement” and (2) “determining the size of the open spaces of a known scale of the design plan necessary to

allow movement of the support device used by persons with disabilities and the aging population based on evaluating the visual illustration of the feasibility of movement.”

As is apparent in Figure 6, the design tool (10) may be moved around design elements such as the hallway and conference room of the design plan (60) in order to perform the claimed method. The specification states that “[a] design tool ... is moved by the user along the hallways, through doorways,



**Fig.6**

and in office and other room spaces, either by holding and pushing the icon figure and base directly, or by manipulating the icon figure and base using the accompanying wand. Manipulation of the design tool along these pathways visually illustrates the feasibility of movement along the noted paths in light of the size and turning radius of the represented person.” p. 5, lns. 27-30. By manipulating the design tool over the plan, the designer is able to “evaluate and eventually design appropriately sized plan configurations to meet the special needs of persons with disabilities and the aging population, such as the size and configuration of rooms, doorways and stairways to provide appropriate wheelchair access.” p. 5, ln. 30-p. 6, ln. 2.

## **VI. ISSUES PRESENTED**

The issue presented for review is whether the Examiner improperly rejected the pending claims under 35 U.S.C. § 103(a). In other words:

(1) Were claims 1, 14, 19-22, 25, 28, 33-35, 37 and 38 properly rejected under 35 U.S.C. § 103(a) as being unpatentable over the drawing template of Bobrick in view of Marshall?

(2) Were claims 3-6, 8, 9, 11-13, 15, 16, 18, 22, 26, 31, 32 and 36 properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Bobrick in view of Marshall and Stansbury?

(3) Were claims 10 and 17 properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Bobrick in view of Marshall, Stansbury, and Riehle?

## **VII. GROUPING OF CLAIMS**

The Examiner grouped the claims into three sets. For the purpose of this appeal, the Applicant separates the method claims (35-38) into a separate group. Accordingly, the four groups are:

- (1) claims 1, 14, 19-22, 25, 28 and 33-34;
- (2) claims 3-6, 8, 9, 11-13, 15, 16, 18, 22, 26, 31 and 32;
- (3) claims 10 and 17;
- (4) claims 35-38

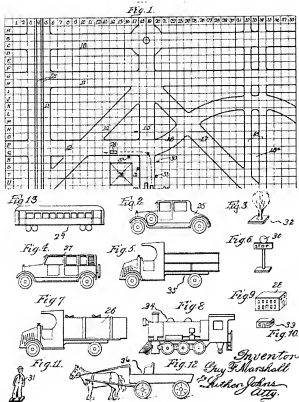
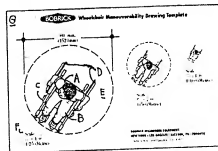
## VIII. ARGUMENT

### A. CLAIMS 1, 14, 19-22, 25, 28 AND 33 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(a)

#### 1. References Relied Upon For Rejection

In the final rejection under 35 U.S.C. § 103, the Office Action rejected claims 1, 14, 19-22, 25, 28, 33-35, 37 and 38 in view of the combination of Bobrick and Marshall.

An illustration of the device of Bobrick is reproduced to the right. Bobrick discloses a two dimensional template bearing a top view of a person seated within a wheelchair. The template is positioned over a design plan to assess whether the plan accommodates the turning radius of a wheel chair.



Marshall discloses a system for recreating accidents that includes a street diagram (reproduced at left). A number of replicas of cars, people, etc. is provided for positioning on the street diagram in order to recreate an accident scene. Replicas of people include a small rectangular base for supporting the replica. The base bears no relation to a turning radius of the figure. The replicas are statically placed on the street diagram according to a witness' recollection

and the coordinates of the replicas are recorded to provide a written report of the witness' recollection. col. 8, lns. 1-9 ("When he has redeveloped the scene optically it is a simple matter by means of the abscissa and ordinate scale markings and the indications thereof to reduce his statement to writing by reference to the markings on the chart device").

## **2. The Claims Were Improperly Rejected**

Claims 1, 14, 19-22, 25, 28 and 33-34 were improperly rejected under 35 U.S.C. § 103(a) in view of the combination of Bobrick and Marshall. To establish a *prima facie* case of obviousness, the combined references must teach or suggest *each and every claim limitation*. M.P.E.P. § 706.02(j); *In re Vaack*, 947 F.2d 488, 493 (Fed. Cir. 1991); *In re Wilson*, 424 F.2d 1382 ("all words in a claim must be considered in judging the patentability of that claim against the prior art"). "A PTO rejection for obviousness is improper when there is nothing in the cited prior art references, either singly or in combination, to suggest the desirability of the claimed subject matter." *In re Deminski*, 796 F.2d 436 (Fed. Cir. 1986). In the present case, the rejection is improper, and fails to establish a *prima facie* case of obviousness, because the invention recited in independent claims 1, 14, 21, 22, 28 and 35 includes limitations neither taught nor suggested in any combination of the cited references.

### **a. The prior art does not disclose a three-dimensional member and base as recited in the claims**

Claim 1, recites the following limitations:

- 1) a three-dimensional member shaped as a human seated in a wheelchair, the member scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of the design plan, and

- 2) a three-dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair to visually illustrate the feasibility of movement of the wheelchair in a space represented by the design plan.

Neither of these limitations, whether alone or in combination is shown in the prior art. Bobrick discloses a two dimensional template. As noted by the examiner in the Office Action mailed May 4, 2006, Bobrick therefore fails to disclose a “three-dimensional member” or “a three-dimensional base.”

The Examiner asserts that because Bobrick notes that the feet and knees of a person seated within a wheel chair need to be accommodated, the reference teaches or suggests a three-dimensional design tool. However, Bobrick does not suggest in any way that a three-dimensional member and base as recited in claim 1 would provide a superior means for assessing the location of washroom accessories or other design elements.

Marshall fails to remedy the deficiencies of Bobrick. The models of Marshall include small rectangular bases apparent in the figures. There is absolutely no suggestion that these bases should have “a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair to visually illustrate the feasibility of movement of the wheelchair in a space represented by [a] design plan.” The Examiner did not provide any indication in the prior art of how a small rectangular base, apparently serving to support the figure in a vertical position, suggested modification to “coincide with a scaled space envelope.” The Examiner further failed

to provide any indication of how a two-dimensional template suggested combination with a replica of a person to achieve the claimed invention.

Independent of the lack of suggestion, modification or combination, neither Bobrick nor Marshall provides a motivation for combination. Even if the prior art disclosed a three-dimensional member and base as claimed—which it does not—there must still be a motivation in the art to combine them as claimed. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931 (Fed. Cir.), *cert. denied*, 498 U.S. 920 (1990). The need for such a motivation is particularly acute where, as here, one or more claim limitations is wholly missing yet the Examiner contends that it would be obvious to modify the prior art to produce it. *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999) (A showing of a suggestion, teaching, or motivation to combine prior teachings “must be clear and particular. . . . Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence.”); *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990) (Although a prior art device “may be capable of being modified to run the way [the patent applicant’s] apparatus is claimed, there must be a suggestion or motivation in the reference to do so.”).

Moreover, the rejection here improperly relies on hindsight reconstruction. As the Federal Circuit has cautioned, the requirement for a teaching or motivation to combine or modify is the best defense against improper use of hindsight. *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999). “The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992). It is impermissible to use the claimed invention as an instruction manual to piece together the teachings of the prior art to render the claimed invention obvious. *Id.*

The rejection here is improper because it uses the claimed invention as a guide to combine elements from the Bobrick and Marshall without any teaching or suggestion why such a modification should be made. The unlikely combination of a two-dimensional template with a three-dimensional figure is not made any more likely by the cited references. The combination can only be viewed as obvious using hindsight based on Applicant's own disclosure.

The above arguments apply with equal weight to the remaining independent claims of group 1, including the "three-dimensional base" and "three-dimensional icon" of claim 14, the "means scaled to indicate a turning radius" and "three-dimensional base" of claim 21, the "first means" and "three-dimensional base" of claim 22, the "first base means" and "second means" of claim 28, and the "three-dimensional tool" having a "three-dimensional base" of claim 35.

Claims 19, 20, 25 and 33-34 depend from independent claims 1, 14, and 22, respectively. For the purpose of this appeal, the Applicant will rely on the arguments above with respect to the dependent claims, and contend only that they should not have been rejected because they depend from allowable claim 1.

**B. CLAIMS 3-6, 8, 9, 11-13, 15, 16, 18, 22, 26, 31 AND 32 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(a)**

***1. References Relied Upon For Rejection***

In the Final Office Action, claims 3-6, 8, 9, 11-13, 15, 16, 18, 22, 26, 31 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bobrick in view of Marshall and U.S. Patent 4,276,695 (Stansbury).



Figure 1 of Stansbury is reproduced to the right. Stansbury discloses a roller measuring device, in which a housing bearing the roller is pushed or pulled by a handle 44 secured to the housing.

## 2. *The Claims Were Improperly Rejected*

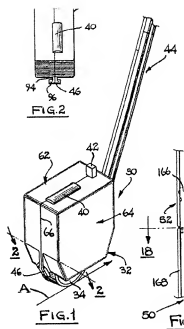
Claims 3-6, 8, 9, 11-13, 15, 16, 18, 22, 26, 31 and 32 were improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Bobrick in view of Marshall and Stansbury.

### a. **The prior art does not suggest combination to achieve the claimed invention.**

As already noted above, Bobrick and Marshall fail to disclose the three-dimensional member and base as recited in the claims. Bobrick, Marshall and Stansbury further fail to suggest combination to achieve embodiments of the claimed invention including a wand as recited in claim 3, 26 and 36, a “second component extending from [a] first component” as recited in claim 4, a “member extending from [an] icon figure” as recited in claim 6, and a “second means extending from the icon figure” as recited in claim 22.

With respect to Bobrick, it is readily apparent that securing a wand to a thin flexible template would be unworkable. More importantly, there is no teaching or suggestion in either Bobrick or Stansbury to secure a handle to the template of Bobrick.

With respect to Marshall, there is no teaching or suggestion to secure a handle to the models. Marshall simply teaches placement of the models on a street map marked with a grid. There is no indication in any of the references to any special need or benefit to be obtained by



securing a handle to the models of Marshall. Why anyone would secure a wand to a scale replica of a person is simply not found in Marshall or any of the other cited references.

There is also no motivation to combine the references found in the prior art. The objective of the scale models of Marshall is to represent the location of a person. This objective does not motivate securing of a handle to the models. A handle would be a superfluous member serving only to cause the models to tip.

The combination of references is the result of improper hindsight reconstruction. Given the lack of a suggestion or motivation to combine the references, the combination relied on for rejection is simply the result of using the claimed invention as a template to arbitrarily combine elements of prior-art references.

Claims 5, 8, 9, 11-13, 15, 16, 18, 31 and 32 depend from independent claims 4, 6 and 14, respectively. For the purpose of this appeal, the Applicant will rely on the arguments above with respect to the dependent claims, and contend only that they should not have been rejected as being dependent on an allowable claim.

**C. CLAIMS 10 AND 17 WERE IMPROPERLY REJECTED UNDER 35 U.S.C. § 103(a)**

Claims 10 and 17 were improperly properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Bobrick in view of Marshall, Stansbury and Riehle. For the purposes of this appeal, the Applicant will rely on the arguments above with respect to claims 6 and 14, and contend only that they should not have been rejected because they depend from allowable claims 6 and 14.

**D. CLAIMS 35 - 38 WERE IMPROPERLY REJECTED UNDER 35-38 U.S.C. § 103(a)**

With respect to the structural limitations of claims 35, 37 and 38, Applicant will rely on arguments above with respect to group 1. With respect to the structural limitations of claim 36, Applicant will rely on arguments above with respect to group 2.

Claims 35-38 are further novel and nonobvious in view of the cited art. The cited references fail to disclose or render obvious the structural limitations of the claims and further fail to teach performing the method recited in the claims. Independent claim 35 recites the steps of

manipulating the tool within the spaces of a known scale of the design plan to visually illustrate the feasibility of movement within the spaces of a known scale in light of the size of the represented support device; and determining the size of the open spaces of a known scale of the design plan necessary to allow movement of the support device used by persons with disabilities and the aging population based on evaluating the visual illustration of the feasibility of movement within the spaces of a known scale in light of the size of the represented support device.

The device of Bobrick is a static template that provides no ready means for movement along a design plan as recited in the claims. As noted previously, Marshall likewise does not disclose movement, but rather teaches static positioning. As noted above there is no teaching or suggestion to combine the push rod of Stansbury with Bobrick or Marshall to achieve the step of manipulating the claimed tool with a wand as recited in claim 36.

For the purposes of this appeal, the Applicant will rely on the arguments above with respect to claims 37-38 and contend only that they should not have been rejected because they depend from allowable claim 35.

**E. THE INVENTION IS NON-OBVIOUS IN VIEW OF SECONDARY CONSIDERATIONS**

In addition to the reasons set forth above, and forming an alternative basis for patentability, the claimed invention is not obvious in view of the evidence of secondary considerations submitted in the declarations of Duncan, Hartje, Miller, Tenenbaum and Pace. These declarations contain the opinions of experts in the industry establishing the commercial success, long-felt need and failure of others as related to Applicant's invention.

**1. *The Declarations Constitute Proper Evidence of Secondary Considerations***

The Examiner has objected to the declarations as failing to convey objective evidence of commercial success, long-felt need and failure of others. More specifically, the Examiner has repeated the statement that the declarations fail to constitute "objective evidence" of nonobviousness. Applicant respectfully submits that the Examiner refusal to consider the declarations as "objective evidence" of the secondary considerations is improper.

The Supreme Court and Federal Circuit have long stated that commercial success, long-felt need and failure of others are objective evidence of nonobviousness that must be considered. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379 (Fed. Cir. 1986) ("Objective evidence such as commercial success, failure of others, long-felt need, and unexpected results must be considered before a conclusion on obviousness is reached and is not merely 'icing on the cake.'"). 37 C.F.R. §1.132 specifically confirms that "[w]hen any claim of an application or a patent under reexamination is rejected or objected to, any evidence submitted

to traverse the rejection or objection on a basis not otherwise provided for must be by way of an oath or declaration under this section.” Accordingly, it is improper to state that the opinions and facts alleged in the declarations are not evidence of nonobviousness.

Likewise, the Federal Rules of evidence allow for testimony of expert witnesses (FRE 702, 703) and opinion testimony (FRE 701) where the witness has a rational basis for the testimony. As stated in the submitted declarations, Susan M. Duncan, Sandra Hartje, Louis S. Tenenbaum, Michael Miller and Rex J. Pace are qualified by knowledge, skill, education and experience to testify regarding the state of the relevant industry. Their opinions therefore constitute legally sufficient evidence as opinions based on their expertise and as opinions based on their extensive personal knowledge of the industry. It is worthy of note that none of the third-party declarants have any professional or commercial relationship with the Applicant, Susan Duncan, but rather have submitted their declarations solely in recognition of the merits of the claimed invention.

Accordingly, under these principles, Applicant submits that the facts and opinions contained in the declarations must be given evidentiary weight in evaluating the obviousness of the claims. The facts and opinions alleged therein are legally sufficient evidence establishing commercial success, long-felt need and failure of others.

**2. *The Declaration of Susan M. Duncan Establishes Commercial Success of the Claimed Invention***

With respect to evidence regarding commercial success, the Examiner asserted that the declarations fail to provide “objective evidence” that Applicant’s commercial success was not due to heavy promotion or shift in advertising or that the number of unit sales is considered to be

significant given the industry. Applicant respectfully submits that the Examiner's position is in error.

First, Applicant is not required to prove a negative or, in other words to prove that commercial success of the patented invention is not due to factors other than the patented features. As explained by the Federal Circuit:

A patentee is not required to prove as part of its *prima facie* case that the commercial success of the patented invention is not due to factors other than the patented invention. It is sufficient to show that the commercial success was of the patented invention itself. A requirement for proof of the negative of all imaginable contributing factors would be unfairly burdensome, and contrary to the ordinary rules of evidence.

*Demaco Corp. v. F. Von Langsdorff Licensing, Ltd.*, 851 F.2d 1387, 1394 (Fed. Cir. 1988). Rather, to make out a *prima facie* case of nonobviousness, Applicant is required to show only that commercial success was of the patented invention itself or, in other words, of a product embodying the invention. *Demaco*, 851 F.2d at 1394; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 719 (Fed. Cir. 1991).

Second, as stated in the Duncan Declaration, the commercial success of the invention in fact occurred in the absence of heavy advertising or promotion. Ms. Duncan testified that the sales were not due to "any significant promotion or advertising of the Visualizer Set, let alone heavy promotion or advertising." (Appendix C, p. 4, Ins. 21-22.) Ms. Duncan further testified to the following objective facts establishing commercial success:

- Over 200 units of the invention have been sold in a very small market of professionals, and

- Such sales amount to 100% of the market for such products. (Appendix C, p. 4, Ins. 4-19).

These facts establish both the number of units sold and their market share. The nexus between the patented features and the commercial success is established by the fact that the product sold embodied the claimed invention. *Demaco*, 851 F.2d at 1392-93. As is apparent from the figures submitted with the Duncan Declaration, the device sold precisely embodies the claim limitations (See e.g. Figure 1 reproduced above). Accordingly, the facts alleged in the Duncan Declaration, together with the declarations of the third parties, adequately establish commercial success of the invention.

### ***3. The Invention Satisfies a Long-Felt Need***

The facts alleged in the submitted declarations further demonstrate long-felt need and the failure of others, which evidence further establishes the patentability of Applicant's invention. In order to establish nonobviousness in view of a long-felt need, one must show:

- A recognized persistent need. *Markman v. Lehman*, 987 F. Supp. 25, 43 (D. D.C. 1997), *aff'd*, 178 F.3d 1306 (Fed. Cir. 1998).
- The long-felt need and the failure of others to satisfy that need must exist in view of improvements in the art since the need arose. *Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 884 (Fed. Cir. 1998).
- The claimed invention must in fact satisfy the long felt need. *Caldwell v. United States*, 481 F.2d 898 (Ct. Cl. 1973).
- The claimed invention must be responsible for satisfying the long felt need, rather than an unclaimed feature of the device. *Sjolund v. Musland*, 847 F.2d 1573 (Fed. Cir. 1983).

The declarations submitted by disinterested participants in the relevant industry establish each of these elements.

**a. A recognized persistent need existed.**

The declarations submitted establish both the existence of a need and its duration. The declaration of Michael Miller states that “while the industry has limped along for more than a decade with static tools, and there has been a need for a tool, none presented itself until Susan Duncan’s Visualizer Set.” (Appendix E, p. 2, Ins. 15-6). The declaration of Louis Tenenbaum states that “[f]or the better part of the last twenty years, and certainly since the heightened interest nationwide in accessibility issues, there is a great need for design tools that can help the designer view three dimensional layout issues on a set of drawings.” (Appendix F p. 2, Ins. 19-21).

The needs left unsatisfied by prior art devices are also enumerated. Michael Miller states “these prior tools did not work to provide the immediate visual feedback and accessibility design information necessary for designer and managers to address accessibility issues on design plans.” (Appendix E, p. 2, Ins. 14-16). He further states that, “all of these tools are severely limited due to their static nature. It has been found that even using these tools, when actual construction takes place the plans do not necessarily insure that what is built is in compliance with applicable guide lines.” (Appendix E, p. 1, In. 25 – p. 2, In. 2). According to Miller “such a static template does not visually illustrate the actual *movement* of a person using a wheelchair or other types of mobility equipment as it negotiates a space.” (Appendix E p. 2, Ins. 8-10).

Sandra Hartje asserts in her sworn declaration that “[d]espite attempts to provide a efficient and effective accessibility design tool, including improving on known tools, existing accessibility design tools, or tools that have been attempted to be developed, such as the Bobrick



template, suffer from severe practical limitations that make it difficult if not impossible to demonstrate and visually show how a person using a wheelchair actually maneuvers in space using an architectural scale.” (Appendix D, p. 2, Ins. 5-9). Sandra further states that “using templates as an overlay requires manual manipulation of the template, which obscures the visual movement being demonstrated.” (Appendix D, p. 2, Ins. 14-15).

The declaration of Rex J. Pace states that prior-art templates “create a lot of distracting ‘visual’ noise” and “are exclusively two dimensional in nature” and therefore “certain scale and spatial relationships are lost.” Appendix G p. 2, Ins. 15-18.

**b. The need exists in view of the current state of the art.**

The need highlighted in the declarations persists in spite of advances in the art. More specifically, the need was left unsatisfied by the template of Bobrick. As noted in the declaration of Sandra Hartje, “existing accessibility design tools, or tools that have been attempted to be developed, such as the Bobrick template, suffer from severe practical limitations that make it difficult if not impossible to demonstrate and visually show how a person using a wheelchair actually maneuvers in space using an architectural scale.” (Appendix D, p. 2, Ins. 5-9). The declaration of Tenenbaum also discusses the deficiencies of current two-dimensional templates, including specifically the template of Bobrick. (Appendix F, p. 2, ln. 24). Rex J. Pace, who participated in the development of the Bobrick template, also acknowledges the deficiencies of such templates. Appendix G p. 2, Ins. 5-17.

**c. The claimed features satisfy the long felt need.**

Each of the submitted declarations indicate that the claimed invention satisfies the need left unsatisfied by the prior art. Louis Tenenbaum states that the Visualizer Set tool is “extremely valuable for resolving the design and communication issues described above including the ability

to picture the maneuverability of a wheelchair through spatial layout and the interface of the height dimensions of a wheel chair and user with the height of items in the space.” (Appendix F, p. 3, lns. 2-5). Michael Miller states that the Visualizer Set allows a design plan to “be checked with more accuracy than was previously available.” (Appendix E, p. 2, lns. 24-25). Sandra Hartje states that the Visualizer set meets “a long unmet need for an accessibility design tool that is readily moveable by the user and provides properly scaled visualization of accessibility needs on design plans. (Appendix D p. 3, lns. 5-7).

The declarations of Sandra Hartje, Michael Miller, Louis Tenenbaum and Rex Pace each indicate that the features of the Visualizer Set are as recited in the claims, including the three-dimensional base, three-dimensional member, and wand. (Appendix D, p. 2, lns. 19-26; Appendix E, p. 2, lns. 17-24; Appendix F, p. 3, lns. 1-12).

**d. The claimed features are responsible for satisfying the long-felt need.**

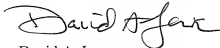
As is evident in Exhibit A of the declaration of Susan M. Duncan, the Visualizer Set which is responsible for the commercial success and satisfaction of the long-felt need in the industry includes the three-dimensional member, three-dimensional base, and wand as recited in the claims. It is plainly evident that the Visualizer Set is the device illustrated in Figure 1 of the application as filed. The Visualizer Set also clearly includes no features other than those recited in the claims.

## IX. CONCLUSION

For the foregoing reasons, the Examiner's final rejections should be reversed and the pending claims should be allowed.

Respectfully submitted,

BLACK LOWE & GRAHAM<sup>PLLC</sup>



David A. Lowe  
Registration No. 39,281  
Direct Dial: 206.381.3303

## Appendix A—Claims on Appeal

1. A design tool for use in association with a design plan having spaces of a known scale for functional and space planning, comprising:

- a three-dimensional member shaped as a human seated in a wheelchair, the member scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of the design plan, and
- a three-dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair to visually illustrate the feasibility of movement of the wheelchair in a space represented by the design plan.

3. The design tool of claim 1, further comprising a wand extending from the member in operation of the design tool.

4. A system for use in association with a design plan having spaces of a known scale for functional and space planning, comprising:

- a first three-dimensional component having a base with a surface engageable with the design plan, the base extending downwardly and outwardly and having a peripheral edge scaled to indicate a turning radius to imitate the turning radius of a support device used by persons with disabilities and the aging population; and
- a second component extending from the first component at any angle relative to the surface of the first component other than perpendicular.

5. The system of claim 4, wherein the first component is shaped as a human seated in a wheelchair.

6. A design tool for use in association with a design plan having spaces of a known scale for functional and space planning in the fields of architecture, interior design, and construction of residential and commercial structures, comprising:

a three-dimensional base having a peripheral edge and a surface engageable with the design plans, the base scaled to indicate a turning radius to imitate the turning radius of a support device used by persons with disabilities and the aging population;

a three-dimensional icon figure attached to and extending upwardly from the base, the icon figure sized to the scale of the design plan to allow accurate representation of the movement of persons with disabilities and the aging population within the spaces of the design plan to visually illustrate the feasibility of movement along the noted paths in light of the size and turning radius of the represented person; and

a member extending from the icon figure at any angle relative to the surface of the base other than perpendicular.

8. The design tool of claim 6, wherein the member has a first and a second end, the icon figure includes an opening corresponding in size to the first end of the member, and the first end of the member is maintained within the opening of the icon figure.

9. The design tool of claim 8, wherein the first end of the member is maintained within the opening of the icon figure by frictional contact of the first end of the member to the interior of the opening.

10. The design tool of claim 8, wherein the icon figure includes a metal plate located in the opening, the first end of the member includes a magnet, and the member is maintained within the opening of the icon figure by the metal plate-magnet combination.

11. The design tool of claim 8, wherein the opening of the icon figure includes first ridges along the interior of the opening, the first end of the member includes second ridges corresponding to the first ridges along the interior of the opening, and the member is maintained within the opening of the icon figure by the snap-lock combination between the first and second ridges.

12. The design tool of claim 6, wherein the base has a diameter equal to or greater than the diameter of the icon figure.

13. The design tool of claim 6, wherein the icon figure is shaped as a human seated in a wheelchair.

14. design tool for use in association with a design plan having spaces of a known scale for functional and space planning, comprising:

a three-dimensional base having a peripheral edge and a surface engageable with the design plan, the base scaled to indicate a turning radius to imitate the turning radius of a support device used by persons with disabilities and the aging population; and

a three-dimensional icon attached to and extending upwardly from the base, the icon having the dimensions of the support device sized to the scale of the design plan to allow accurate representation of the movement of persons with disabilities and the aging population within the spaces of a known scale of the design plan to visually illustrate the feasibility of movement along the noted paths in light of the size of the represented support device.

15. The design tool of claim 26, wherein the wand has an end, the design tool includes an opening corresponding in size to the end of the wand, and the end of the wand is maintained within the opening of the design tool.

16. The design tool of claim 15, wherein the end of the wand is maintained within the opening of the design tool by frictional contact of the end of the wand to the interior of the opening.

17. The design tool of claim 15, wherein the design tool includes a metal plate located in the opening, the end of the wand includes a magnet, and the wand is maintained within the opening of the design tool by the metal plate-magnet combination.

18. The design tool of claim 15, wherein the opening of the design tool includes first ridges along the interior of the opening, the end of the wand includes second ridges corresponding to the first ridges along the interior of the opening, and the wand is maintained within the opening of the design tool by the snap-lock combination between the first and second ridges.

19. The design tool of claim 14, wherein the icon is shaped as a wheelchair.

20. The design tool of claim 14, wherein the icon is a figure shaped as a human seated in a wheelchair.

21. A design tool for use in association with a design plan having spaces of a known scale for functional and space planning, comprising a three-dimensional means scaled to indicate a turning radius to imitate the turning radius of a support device used by persons with disabilities and the aging population and having a three-dimensional base with a peripheral edge sized to the scale of the design plan to a scaled space envelope desired for movement of the support device to allow accurate representation of the movement of persons with disabilities and the aging population along the spaces of the design plan to visually illustrate the feasibility of movement along the noted paths in light of the size and turning radius of the represented support device.

22. A design tool for use in association with a design plan having spaces of a known scale for functional and space planning, comprising a first means engageable with the design plans, the

first means being three-dimensional and having a three-dimensional base extending downwardly and outwardly and having a peripheral edge scaled to indicate a space envelope of a turning radius to imitate the turning radius of a support device used by persons with disabilities and the aging population, and a second means extending from the icon figure at any angle relative to the surface of the first means other than perpendicular for supporting the first means in operation of the design tool.

25. The system of claim 4, wherein the first component is shaped as a wheelchair having at least two wheels supporting a chair.

26. The design tool of claim 14, further comprising a wand extending from the design tool.

28. A design tool for use in association with a design plan having spaces of a known scale for functional and space planning, comprising:

a first base means engageable with the design plans and having a peripheral edge with a size shaped to coincide with a scaled space envelope desired for movement of a support device used by persons with disabilities and the aging population, the first-means being three-dimensional; and

a second means having the dimensions of the support device and sized to the scale of the design plans to allow accurate representation of the movement of persons with disabilities and the aging population along the hallways, doorways, stairways, rooms and other spaces of the design plan to visually illustrate the feasibility of movement of the represented support device in a space represented by the design plan.

31. The design tool of claim 6, wherein the spaces of a known scale comprise at least one of hallways, doorways, stairways and rooms.



32. The design tool of claim 31, wherein the three-dimensional icon figure attached to the base is sized to the scale of the design plan to allow accurate representation of the movement of persons with disabilities and the aging population along at the least one of hallways, doorways, stairways and rooms.

33. The design tool of claim 14, wherein the spaces of a known scale comprise at least one of hallways, doorways, stairways and rooms.

34. The design tool of claim 33, wherein the three-dimensional icon attached to the base has dimensions of the support device sized to the scale of the design plan to allow accurate representation of the movement of persons with disabilities and the aging population along at the least one of hallways, doorways, stairways and rooms.

35. A method for operating a three-dimensional tool in association with a design plan having spaces of a known scale for functional and space planning, comprising:

selecting a tool having a three-dimensional base including a peripheral edge shaped to coincide with a scaled space envelope appropriately sized to the scale of the design plan to allow accurate representation of the movement of a support device used by persons with disabilities and the aging population in a space represented by the design plan;

positioning the tool within the spaces of a known scale of the design plan;

manipulating the tool within the spaces of a known scale of the design plan to visually illustrate the feasibility of movement within the spaces of a known scale in light of the size of the represented support device; and

determining the size of the open spaces of a known scale of the design plan necessary to allow movement of the support device used by persons with disabilities and the aging population based on evaluating the visual illustration of the feasibility of

movement within the spaces of a known scale in light of the size of the represented support device.

36. The method of claim 35, wherein the tool is manipulated within the spaces of a known scale of the design plan using a wand.

37. The method of claim 35, wherein the spaces of a known scale comprising at least one of hallways, doorways, stairways and rooms.

38. The method of claim 37, wherein manipulating the tool within the spaces of a known scale of the design plan comprises moving the tool along at least one of hallways, doorways, stairways and rooms.

## Appendix B – Bobrick



25315

PATENT TRADEMARK OFFICE

BLACK LOWE & GRAHAM <sup>PLC</sup>



701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

# SPACE FOR PEOPLE IN WHEELCHAIRS IS A FUNDAMENTAL DESIGN CONSIDERATION

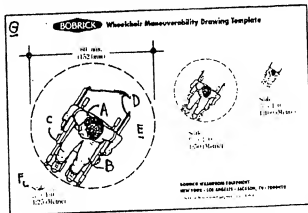
The needs of an adult seated in a wheelchair are commonly used as the standard of accessibility for barrier-free washrooms in terms of entrance, exit, and the proximity of equipment. By using the wheelchair perspective you can also accommodate a person using a walker, cane, or crutches. Consideration must also be given to the mounting heights of common accessories, such as mirrors, paper towel dispensers, waste receptacles, soap dispensers, napkin/napkin and condom vendors, and toilet partition-mounted equipment, including grab bars, toilet tissue and seat-cover dispensers, and sanitary napkin dispensers.

**CLEAR FLOOR SPACE** to accommodate a single wheelchair must be at least 30" x 48" (760 x 1219mm). The space can be positioned for a *forward* or *parallel* approach to equipment (see ADAAG 4.2.4). A portion of the clear floor space may be located under fixtures, lavatories, or accessories as long as the required knee and toe clearance is provided (Fig. 4a). If properly centered in front of controls and operating mechanisms, the clear floor space will allow both left- and right-hand access to the equipment. Floor spaces may have to be wider if elements are placed in alcoves.

**MOUNTING HEIGHT REQUIREMENTS** for washroom accessories may vary within a facility depending on the location of individual accessories and the direction of reach required for their use. To allow *side reach* by people in wheelchairs, it is recommended that accessories be mounted with their dispensing mechanisms, start buttons, coin slots, or dispenser openings located 38" to 51" (965-1302mm) above the finish floor, and to ensure *forward reach*, they must be located no more than 48" (1219mm) above the finish floor (Fig. 1). Where elements are mounted over obstructions, such as counters, they must be located no more than 44" (1118mm) above the finish floor. Mounting heights for children will differ from those given here and in ADAAG for adults. In facilities used predominantly by children appropriate adjustments in dimensions will be necessary.

**TURNING SPACE** at least 60" (1524mm) in diameter is required by a single wheelchair to make a 180-degree turn (Fig. 2a). A 60" x 60" (1524 x 1524mm)

T-shaped turning space with 36" (914mm) wide aisles to allow a three-point turn (Fig. 2b) is also acceptable and may be used to conserve space in some installations. A portion of the 60" (1524mm) diameter or T-shaped turning spaces may be located under fixtures, lavatories, or accessories as long as the required knee- and toe clearance is provided (Fig. 1a).



## Bobrick's wheelchair maneuverability drawing template.

Three plan views of a person in a wheelchair are illustrated in scales of 1/4" = 1'-0" (1:48 metric), 1/2" = 1'-0" (1:24 metric), and 3/4" = 1'-0" (1:16 metric). The template is printed on clear rigid plastic so it can be placed over drawings to verify proper clearance and maneuverability within the installation plan. It is especially helpful in designing entrances, lavatory areas, and toilet compartments.

Fig. 1 Bobrick's Recommended Mounting Heights for Washroom Accessories

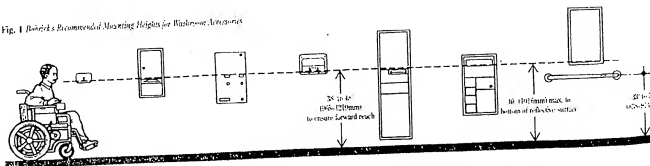
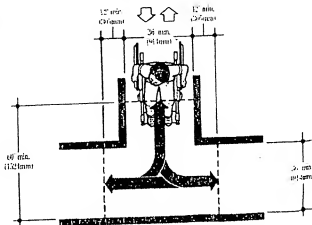
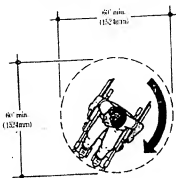


Fig. 2 Wheelchair Turning Space for 180° Turns

Scale: 3/4" = 1'-0"



## Appendix C – Declaration of Susan M. Duncan



25315

PATENT TRADEMARK OFFICE

BLACK LOWE & GRAHAM <sup>PLLC</sup>



701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan Attorney Docket No. ADAP-1-1002  
Serial No.: 09/881,856 Group Art Unit: 2859  
Filing Date: June 13, 2001 Examiner: T. Reis  
Title: SPACE CONFIGURATION DESIGN TOOL

SECOND DECLARATION UNDER 37 C.F.R. § 1.132 OF SUSAN M. DUNCAN  
TO THE COMMISSIONER OF PATENTS:

I, Susan M. Duncan, residing at 1213 6<sup>th</sup> Street NE, Auburn, Washington 98002,  
pursuant to 37 C.F.R. § 1.132, hereby state as follows:

1. I am the inventor of the subject matter of the above-identified patent application. I am also the founder and president of AD*A*ptations inc.® I have been involved with accessibility issues for more than 20 years. Since 1978, my company, AD*A*ptations inc., has specialized in planning for and providing accessibility and space planning services for a wide variety of industries. Since the mid 1980's, I have personally taught more than 400 classes regarding accessibility and space planning at five different universities or other schools of higher education. This is an addendum to my January 23, 2004 declaration.

**VISUALIZER® SET—THE COMMERCIAL EMBODIMENT OF THE CLAIMED INVENTION**

2. The Visualizer® Set product sold by AD*A*ptations inc. is the commercial embodiment of the space configuration design tool of the present invention. Specifically, as shown in Exhibit A hereto, the Visualizer Set includes a three-dimensional member shaped as a human seated in a wheelchair, the member scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of a design plan, and a three dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair to visually illustrate the

feasibility of movement of the wheelchair in a space represented by the design plan. The Visualizer Set is typically sold further including a wand extending from the three-dimensional member used to move the tool along design plan paths.

#### INOPERABILITY OF THE PRIOR ART AND LONG- FELT NEED

3. There has been a long-felt and persistent need among those in the industry, particularly among building designers, contractors, and technical support personnel, for a tool that can be used to efficiently and effectively configure interior space as well as access into and out of building structures to accommodate the accessible needs. This need was identified when the importance of accessibility issues were heightened in the United States (and to varying degrees the rest of the world) in the early 1990s.

4. Various design tools have been used in an effort to effectively design residential and commercial space to support the accessibility needs of persons with disabilities and the aging population. All of these suffer from various limitations and problems. The best example is the drawing template provided by Bobrick Washroom Equipment, Inc., which was an attempt to meet the long-felt need that originated in 1993. The 4"x 6" template is a clear hard plastic overlay used on top of plans.

5. The Bobrick template does not disclose or provide for wheelchair maneuverability and planning. Instead, the Bobrick template is merely a static overlay. As explained in my earlier declaration, existing design tools such as the Bobrick template suffer from severe practical limitations that make it difficult if not impossible to demonstrate and visually show how a person using a wheelchair actually maneuvers in spaces using an architectural scale. Such two-dimensional templates are used to mark or indicate a static location on a design plan, thereby providing architectural scale and verifying clearances associated with the wheelchair at that location. However, such static templates do not visually illustrate the actual *movement* of the wheelchair as it negotiates the space, which is particularly important to ensure that access ways meet accessibility requirements.

6. Most significant, use of the Bobrick template as an overlay requires manual manipulation of the template. This is accomplished by hand manipulation of the overlay, lifting and placing the overlay at different locations on the design plan, then removing the hands so that the overlay can be viewed on the plans. To simulate visual movement of the  
5 overlap requires continuous hand manipulation, which in turn blocks or obscures parts of the template or design plan. In other words, fingers obscure the very visual movement that is sought to be demonstrated. This disadvantage with the Bobrick template is key—obscuring visual movement of the tool prevents the tool from being used to trace wheelchair movement along design plans for the identification and analysis of accessibility issues. The Bobrick  
10 template can be used to mark a location on a design plan with a wheelchair icon footprint, but such static representation cannot be used to show actual maneuverability within the space.

7. Accordingly, prior to Applicant's invention, the long-felt need for a tool that can be used to efficiently and effectively configure interior space as well as access into and out of building structures to accommodate the accessible needs was not satisfied. This was  
15 the case despite the fact that others in the industry have long been aware of the Bobrick template and had been attempting to craft an effective alternative to the static template.

8. Applicant's invention, and particularly the patentable features of Applicant's invention, satisfied the long-felt need. Applicant's invention includes a three-dimensional member shaped as a human seated in a wheelchair. The member is scaled to allow accurate  
20 representation of the movement of the three-dimensional member within the spaces of known scale of a design plan. The invention further includes a three dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair. Accordingly, Applicant's invention is able to efficiently and effectively visually illustrate the  
25 feasibility of movement of a wheelchair or similar accessibility device in a space represented by the design plan. The wand extending from the three-dimensional member used to move



the tool along design plan paths is a further feature of Applicant's invention that facilitates in meeting the long-felt need for a tool that is readily moveable by the user.

#### COMMERCIAL SUCCESS

9. ADaptations inc. launched the world-wide sales of the Visualizer Set product—the commercial embodiment of the space configuration design tool of the present invention—in January 2004. Since that time ADaptations inc. has sold more than 200 units to individuals or companies around the world. This constitutes a commercially successful product given the specific nature of the tool and the highly specialized nature of the relevant consuming public. As explained above, the tool is uniquely useful to building designers, contractors, and technical support personnel responsible for configuring interior space to accommodate the accessible needs. This is a relatively small group, but one very particular about the tool they use; switching from a traditional analysis tool (e.g., the Bobrick template) to a new device implicitly acknowledges the innovative character of the tool. Accordingly, the number of sales of the Visualizer Set after just eighteen months far exceeds what would normally be expected from a product. After just eighteen months, ADaptations inc. has become the clear market leader in accessibility design tools for building designers, contractors, and technical support personnel for configuring interior space as well as access into and out of building structures to accommodate accessibility needs, cornering 100% of the market for these types of accessibility design tools.

10. The commercial success is also remarkable given that it comes after virtually no promotion or advertising of the device. ADaptations inc. has not engaged in any significant promotion or advertising of the Visualizer Set, let alone heavy promotion or advertising. ADaptations inc. likewise has not shifted its advertising in any substantial way to highlight the product. Based almost solely on word-of-mouth and presentations at industry events and training classes, the commercial embodiment of the invention has nevertheless enjoyed substantial commercial success.

25315

CUSTOMER NUMBER

- 4 -

ADAP-1-1002DEC07SD

BLACK LOWE & GRAHAM <sup>INC.</sup>

701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

11. Accordingly, the commercial success can only be attributed to the claimed features of the invention. The only reason that building designers, contractors, and technical support personnel purchase the tool is to gain the benefit of what makes the tool distinct from the prior art or, in other words, the static Bobrick overlay templates. The features that make the invention and corresponding commercial embodiment attractive and commercially viable is the tool's incorporation of (1) a three-dimensional member shaped as a human seated in a wheelchair where the member is scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of a design plan, and (2) a three dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair. The wand extending from the three-dimensional member used to move the tool along design plan paths is an additional feature of Applicant's invention that provides direct benefits over the Bobrick template and is therefore responsible for the commercial success of the invention.

12. There have been no modifications or improvements to Applicant's invention. Accordingly, all of the commercial success is attributable to the claimed invention.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: August 13, 2005

Susan M. Duncan  
Susan M. Duncan

25315  
CUSTOMER NUMBER

- 5 -

ADAN-1-100210C07SD

BLACK LOWE & GRAHAM <sup>PLC</sup>

701 Fifth Avenue, Suite 4800  
New York, NY 10022

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan Attorney Docket No. ADAP-1-1002  
Serial No.: 09/881,856 Group Art Unit: 2859  
Filing Date: June 13, 2001 Examiner: T. Reis  
Title: SPACE CONFIGURATION DESIGN TOOL

DECLARATION UNDER 37 C.F.R. § 1.132 OF SUSAN M. DUNCAN  
TO THE COMMISSIONER OF PATENTS:

I, Susan M. Duncan, residing at 1213 6th Street NE, Auburn, Washington 98002,  
5 pursuant to 37 C.F.R. § 1.132, hereby state as follows:

1. I am the inventor of the subject matter of the above-identified patent  
application. I am also the founder and president of AD*A*ptations inc.® I have been involved  
with accessibility issues for more than 20 years. Since 1978, my company, AD*A*ptations inc.,  
has specialized in planning for and providing accessibility and space planning services for a  
10 wide variety of industries. Since the mid 1980's, I have personally taught more than 400  
classes regarding accessibility and space planning at five different universities or other  
schools of higher education.

2. Professionals in the fields of architecture, design, manufacturing, and  
construction, as well as building code officials and similar types of technical support  
15 personnel, have had very limited support in terms of design tools necessary to plan effective  
accessible layouts. The challenge is to design residential and commercial space to support the  
accessibility needs of persons with disabilities and the aging population. Building designers,  
contractors, and technical support personnel must be able to efficiently and effectively  
configure interior space as well as access into and out of building structures to accommodate  
20 the accessible needs.

3. Various design tools have been used to attempt to accomplish this goal. Traditionally, planning for accessibility has been primarily accomplished by professionals using an architectural scale. More recent, within the last approximately ten years, CAD programs have integrated icons representing the wheelchair icon footprint and dimensions. These icons are inserted on drawings to demonstrate relative clearances of elements within the drawings and are static in nature.

4. During the last approximately ten years, various template products have been used in the industry as an overlay on top of plans to assist with approximating wheelchair spacing. A good example is the drawing template or overlay provided by Bobrick Washroom Equipment, Inc. The 4"x 6" template is a clear hard plastic overlay used on top of plans to assist with approximating wheelchair maneuverability and planning. This template has been a complimentary marketing piece promoting restroom planning in an effort to increase the sale of Bobrick products.

5. Existing design tools for accessibility and space planning suffer from severe practical limitations. Overall, current systems are limited to marking or indicating a static location on a design plan; they do not demonstrate and visually describe the actual movement of a person using a wheelchair or other types of mobility equipment as it negotiates the space. For example, it is difficult if not impossible to demonstrate and visually show how a person using a wheelchair actually maneuvers in spaces using an architectural scale. Using an architectural scale verifies clearances but does not show the movement. Using the Bobrick template as an overlay requires manual manipulation of the template. Hence fingers obscure the visual movement being demonstrated. The same limitations are seen using other types of templates as well as the CAD program: each can be used to mark a location on a drawing or plan with a wheelchair icon footprint, but such static representations cannot be used to show actual maneuverability within the space.

6. As a result of limitations with current accessibility tools or systems, errors are frequently made in the resulting design or construction due to a lack of understanding as to how a person uses a wheelchair and the space required in which to maneuver the wheelchair.

7. Largely as a result of the limitations of and disadvantages associated with existing accessibility tools and system, as well as the general lack of education on the issue, the market has been slow to embrace accessibility in design and construction. The passing of the Civil Rights Law, the Americans with Disabilities Act (ADA of 1990), helped to increase awareness and demand on professionals to produce more environmental changes. About this time, colleagues in the design field began promoting "Universal Design"—an approach to design that embraces a philosophy of designing products and environments usable by all people. While these efforts have created an increasing need for education and support materials to properly address accessibility and space planning needs, there has long been a void—unmet by the above-described tools and system—when it comes to useful, accurate and ultimately practical accessibility and space planning tools.

8. The space configuration design tool of the present invention uniquely provides an icon or component scaled to indicate turning radius to imitate the turning radius and wheelchair footprint when used in association with design plans having hallways, doorways, stairways, rooms and other spaces of a known scale. The design tool allows designers, contractors, students and a host of other industry personnel to quickly, easily, accurately and visually evaluate accessibility issues for building planning purposes and thereby provide functional and space planning in the fields of architecture, interior design, and construction of residential and commercial structures. By so doing, the space configuration design tool of the present invention overcomes the limitations and disadvantages of the existing accessibility tools and systems to fulfill the long-felt, unmet need of the industry.

9. We are just now officially launching the world-wide sales of the Visualizer™ Set product—the commercial embodiment of the space configuration design tool of the

present invention. ADAdaptations inc. is the only company authorized to manufacture and sell the Visualizer Set. The demand has been incredible. We have received advanced orders for more than 100 units from more than 70 individuals or companies around the world, and expect that orders will continue to pour in as product marketing and word-of-mouth  
5 advertising of the product increases.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of  
10 Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: January 23, 2004


Susan M. Duncan  
Susan M. Duncan

25315  
CUSTOMER NUMBER

- 4 -

ADAP-1-10020DEC01SD

BLACK LOWE & GRAHAM PLC

  
701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301


## Appendix D – Declaration of Sandra Hartje



25315

PATENT TRADEMARK OFFICE

BLACK LOWE & GRAHAM<sup>PLLC</sup>

  
701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan

Attorney Docket No. ADAP-1-1002

Serial No.: 09/881,856

Group Art Unit: 2859

Filing Date: June 13, 2001

Examiner: T. Reis

Title: SPACE CONFIGURATION DESIGN TOOL

DECLARATION UNDER 37 C.F.R. § 1.132 OF SANDRA HARTJE  
TO THE COMMISSIONER OF PATENTS:

I, Sandra Hartje, Associate Professor at Seattle Pacific University, Seattle,  
5 Washington 98119, pursuant to 37 C.F.R. § 1.132, hereby state as follows:

1. I am a tenured Associate Professor of Interior Design and Housing in the  
Department of Family and Consumer Sciences at Seattle Pacific University, having taught  
full-time in this program since September of 1989. I am also the program director for the  
interior design program. I have a B.S. degree in Home Economics Education (1979), and  
10 M.S. (1985) and Ph.D. (1998) degrees in Design, Housing and Apparel, all from the  
University of Minnesota. I make this declaration as an addendum to my January 25, 2004  
declaration.

2. Many efforts have been made over the years to solve problems associated with  
providing a tool for accessibility design. The tool that I am most familiar with for  
15 accessibility symbols is Navigator, a symbols library within ArchT (14.5). ArchT is an  
architectural third-party add-on software to AutoCAD. It enables students to insert  
accessibility symbols (such as wheelchairs) into a drawing, while they are drawing. The  
symbol, is thus, a part of the drawing and is static.

3. Other tools that I have used with students include paper templates and/or  
20 plastic overlays with cut-outs of symbols. I am familiar with the drawing template provided  
by Bobrick Washroom Equipment, Inc., a 4"x 6" template is a clear hard plastic overlay used

25315

CUSTOMER NUMBER

- 1 -

ADAP-1-1002DEC08SH

BLACK LOWE & GRAHAM <sup>PLC</sup>

701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301



on top of plans to assist with approximating wheelchair maneuverability and planning. Again, these tools are static in that the symbol is either cut out and attached to or drawn on a drawing. As a static symbol, no movement is shown. In addition, because they are two-dimensional, even if they were moveable, the visual impact would be minimal, at best.

4. Despite attempts to provide a efficient and effective accessibility design tool, including improving on known tools, existing accessibility design tools, or tools that have been attempted to be developed, such as the Bobrick template, suffer from severe practical limitations that make it difficult if not impossible to demonstrate and visually show how a person using a wheelchair actually maneuvers in spaces using an architectural scale.

A two-dimensional template is used to mark or indicate a static location on a design plan, thereby providing architectural scale and verifying clearances associated with the wheelchair at that location. However, such static templates do not visually illustrate the actual *movement* of a person using a wheelchair or other types of mobility equipment as it negotiates the space. Using the templates as an overlay requires manual manipulation of the template, which obscures the visual movement being demonstrated. The same limitations are seen using other types of templates as well as the CAD program: each can be used to mark a location on a drawing or plan with a wheelchair icon footprint, but such static representations cannot be used to show actual maneuverability within the space.

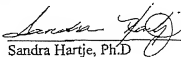
5. I have seen Ms. Duncan's Visualizer Set product and practiced with it on floor plans. The Visualizer Set includes a three-dimensional member shaped as a human seated in a wheelchair. The member is scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of a design plan. It further includes a three dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair. It also includes a wand extending from the three-dimensional member used to move the tool along design plan paths.

6. Clients often have difficulty visualizing design solutions—including accessibility. Students, who are training to become interior designers, must learn how to communicate to their clients visually. Accordingly, Ms. Duncan's Visualizer Set product, and specifically the features of the tool identified above, meet a long unmet need for an accessibility design tool that is readily moveable by the user and provides properly scaled visualization of accessibility needs on design plans.

7. I consider the Visualizer Set tool an extremely valuable, and long-overdue, tool for the interior design industry. It has and will contribute greatly to understanding accessible design and moving the field of accessible and universal design forward.

10 I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

15 Date: 8-4-05

  
Sandra Hartje, Ph.D

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan

Attorney Docket No. ADAP-1-1002

Serial No.: 09/881,856

Group Art Unit: 2859

Filing Date: June 13, 2001

Examiner: T. Reis

Title: SPACE CONFIGURATION DESIGN TOOL

DECLARATION UNDER 37 C.F.R. § 1.132 OF SANDRA HARTJE  
TO THE COMMISSIONER OF PATENTS:

I, Sandra Hartje, Associate Professor at Seattle Pacific University, Seattle,  
5 Washington 98119, pursuant to 37 C.F.R. § 1.132, hereby state as follows:

1. I am a tenured Associate Professor of Interior Design and Housing in the  
Department of Family and Consumer Sciences at Seattle Pacific University, having taught  
full-time in this program since September of 1989. I am also the program director for the  
interior design program. I have a B.S. degree in Home Economics Education (1979), and  
10 M.S. (1985) and Ph.D. (1998) degrees in Design, Housing and Apparel, all from the  
University of Minnesota. In addition, I completed two certificate programs. The first was a  
certificate program in Computer Aided Design (CAD) Applications completed in 1995 at the  
University of Washington. The second was a 70-hour lighting design workshop sponsored by  
the Illuminating Engineering Society of North America and offered at the University of New  
15 Hampshire. I have also completed approximately 15 credits in graduate courses in  
Architecture and Urban Planning at the University of Washington, which were applied  
toward my doctoral course work.

2. In my capacity as an Associate Professor, my responsibilities include  
teaching, advising, and curriculum development in the Interior Design program, as well as  
20 supervising internships for students in Interior Design. In an internship, the student receives  
college credit for the work/hours they complete in a position related to interior design. I teach

a number of classes, including, but not limited to: Introduction to Interior Design, Housing, Interior Design Resources and Materials, Introduction to AutoCAD (R2000), CAD Applications in Interior Design (ArchT 14.5), and Lighting Design. I also serve as the faculty representative for liaison programs with the Fashion Institute of Design and Merchandising (FIDM) in Los Angeles, California and with Bellevue Community College in Bellevue, Washington for interior design transfer students.

3. My responsibilities as a faculty member, advisor, and curriculum developer require that I stay current in all areas of the Interior Design industry. I accomplish this through my professional associations with the local chapters of the American Society of Interior Design (ASID), The Northwest Society of Interior Design (NWSID), the Seattle Design Center, the Interior Design Educators Council (IDEC), the Housing Education and Research Association (HERA), the American Association of Family and Consumer Sciences (AAFCS), and other organizations in the industry. In addition to my university faculty responsibilities, I also draft floor plans and elevations using AutoCAD (R2000) for local designers.

4. The tool that I am most familiar with for accessibility symbols is Navigator, a symbols library within ArchT (14.5). ArchT is an architectural third-party add-on software to AutoCAD. It enables students to insert accessibility symbols (such as wheelchairs) into a drawing, while they are drawing. The symbol, is thus, a part of the drawing and is static.

5. Other tools that I have used with students include paper templates and/or plastic overlays with cut-outs of symbols. Again, these tools are static in that the symbol is either cut out and attached to or drawn on a drawing. As a static symbol, no movement is shown. In addition, because they are two-dimensional, even if they were moveable, the visual impact would be minimal, at best.

6. Clients often have difficulty visualizing design solutions—including accessibility. Students, who are training to become interior designers, must learn how to

communicate to their clients visually. A three-dimensional tool, scaled to the drawing size, would be immensely helpful in both understanding the analysis themselves, and communicating with the client. Prior to Susan Duncan's invention of the Visualizer™ Set product, a tool of this sort did not exist, to my knowledge.

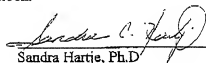
5           7.     I have seen Ms. Duncan's Visualizer™ Set product and practiced with it on floor plans. It overcomes the limitations with prior accessibility tools in four ways: it is movable, it is three-dimensional, the base is clear so one can see through to the floor plan, and it is available in three different scales:  $\frac{1}{2}" = 1'$ ,  $\frac{1}{4}" = 1'$ , and  $\frac{1}{8}" = 1'$ . The use of this tool will certainly make any analysis of floor plans faster and more efficient. It is also easy to  
10 assemble and to manipulate.

          8.     Ms. Duncan's Visualizer™ Set product meets a unmet need in the field of interior design both for students who are training to become interior designers, educators of interior design, and interior design practitioners. Students, as well as others, can use it both to evaluate floor plans as they are creating them and to analyze existing floor plans.

15          9.     I consider the Visualizer™ Set tool an extremely valuable, and long-overdue, tool for the interior design industry. It will contribute greatly to understanding accessible design and moving the field of accessible and universal design forward.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and  
20 further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

25     Date: 1-25-04

  
Sandra Hartje, Ph.D.

## Appendix E – Declaration of Michael Miller



25315

PATENT TRADEMARK OFFICE

BLACK LOWE & GRAHAM <sup>PLLC</sup>



701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan

Attorney Docket No. ADAP-1-1002

Serial No.: 09/881,856

Group Art Unit: 2859

Filing Date: June 13, 2001

Examiner: T. Reis

Title: SPACE CONFIGURATION DESIGN TOOL

SECOND DECLARATION UNDER 37 C.F.R. § 1.132 OF MICHAEL MILLER  
TO THE COMMISSIONER OF PATENTS:

I, Michael Miller, residing at 7147 35<sup>th</sup> Ave SW, Seattle, Washington 98126, pursuant  
5 to 37 C.F.R. § 1.132, hereby state as follows:

1. I am the Americans with Disabilities Act (ADA) compliance manager for  
Sound Transit, 401 S. Jackson, Seattle, WA 98104. As such, it is my responsibility to review  
all capital project plans at the 30, 60, and 90 percent design stage for compliance with the  
ADA, ADA Accessibility Guidelines, International Building Code Accessibility Guidelines,  
10 Federal Transit Administration Accessibility Guidelines, Federal Highway Administration  
Accessibility Guidelines and Washington State Building Code Accessibility Guidelines. I am  
also responsible for conducting in-field evaluations during construction and developing  
as-built drawings after construction is complete. I make this declaration as an addendum to  
my January 26, 2004 declaration.

2. I have been involved with accessibility issues for more than fifteen years in  
the areas of education, deaf, hard of hearing, program access and ADA compliance. I hold a  
Bachelors degree in Psychology with a minor in Deaf Studies and an Associates degree in  
Sign Language Interpreting.

3. In my work reviewing plans for compliance with various accessibility codes,  
20 I have used a variety of tools. These include architectural scales, CAD programs and various  
overlays. All of these tools are severely limited due to their static nature. It has been found


25315

CUSTOMER NUMBER

- 1 -

ADAP-1-1002DEC11M4

BLACK LOWE & GRAHAM <sup>PLC</sup>

  
701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

that even using these tools, when actual construction takes place the plans do not necessarily insure that what is built is in compliance with applicable guidelines. Each of the tools previously used in the industry are static in nature, and are therefore limited because they do not show how wheelchairs move through and amongst the space and the located design elements. In addition, because they are two-dimensional, even if they were moveable, the visual impact would be minimal, at best. A two-dimensional template can only be used to mark or indicate a static location on a design plan, thereby providing architectural scale and verifying clearances associated with the wheelchair at that location. However, such a static template does not visually illustrate the actual *movement* of a person using a wheelchair or other types of mobility equipment as it negotiates the space. As yet another drawback, using the templates as an overlay requires manual manipulation of the template, which obscures the visual movement being demonstrated.

4. Simply put, these prior tools did not work to provide the immediate visual feedback and accessibility design information necessary for designer and managers to address accessibility issues on design plans. While the industry has limped along for more than a decade with the static tools, and there has been a need for a tool, none presented itself until Susan Duncan's Visualizer® Set. The Visualizer Set includes a three-dimensional member shaped as a human seated in a wheelchair. The member is scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of a design plan. It further includes a three dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair. It also includes a wand extending from the three-dimensional member used to move the tool along design plan paths. With the different scales available within the set, virtually any design plan can now be checked with more accuracy than was previously available. The Visualizer



provided the long-missed need of being able to visually—but still accurately—determine accessibility needs in building designs.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and  
5 further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

10 Date:

8/13/04

Michael S. Miller  
Michael Miller

25315  
CUSTOMER NUMBER

- 3 -  
ADAP-1-1002DEC11MM

BLACK LOWE & GRAHAM™

701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan

Attorney Docket No. ADAP-1-1002

Serial No.: 09/881,856

Group Art Unit: 2859

Filing Date: June 13, 2001

Examiner: T. Reis

Title: SPACE CONFIGURATION DESIGN TOOL

DECLARATION UNDER 37 C.F.R. § 1.132 OF MICHAEL MILLER  
TO THE COMMISSIONER OF PATENTS:

I, Michael Miller, residing at 7147 35<sup>th</sup> Ave SW, Seattle, Washington 98126, pursuant  
5 to 37 C.F.R. § 1.132, hereby state as follows:

1. I am the Americans with Disabilities Act (ADA) compliance manager for  
Sound Transit, 401 S. Jackson, Seattle, WA 98104. As such, it is my responsibility to review  
all capital project plans at the 30, 60, and 90 percent design stage for compliance with the  
ADA, ADA Accessibility Guidelines, International Building Code Accessibility Guidelines,  
10 Federal Transit Administration Accessibility Guidelines, Federal Highway Administration  
Accessibility Guidelines and Washington State Building Code Accessibility Guidelines. I am  
also responsible for conducting in-field evaluations during construction and developing  
as-built drawings after construction is complete.

2. I have been involved with accessibility issues for more than fifteen years in  
15 the areas of education, deaf, hard of hearing, program access and ADA compliance. I hold a  
Bachelors degree in Psychology with a minor in Deaf Studies and an Associates degree in  
Sign Language Interpreting.

3. In my work reviewing plans for compliance with various accessibility codes,  
I have used a variety of tools. These include architectural scales, CAD programs and various  
20 overlays. All of these tools are severely limited due to their static nature. It has been found

that even using these tools, when actual construction takes place the plans do not necessarily insure that what is built is in compliance with applicable guidelines.

4. The drawbacks to current tools have pointed to the need for development of a tool that allows for a more visual check of designs. Susan Duncan's Visualizer™ Set product  
5 has filled that need. With the different scales available within the set, virtually any design plan can now be checked with more accuracy than was previously available. I have found that using the Visualizer™ Set tool has greatly reduced the time spent review plans to insure accessibility.

5. This tool will be of great benefit to professionals in a variety of fields  
10 including architecture, design and planning as well as to students in these fields.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of  
15 Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 1/26/2004

M. S. Miller  
Michael Miller

25315  
CUSTOMER NUMBER

- 2 -

ADAP-1-1002DEC04MM

BLACK LOWE & GRAHAM™

701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

## Appendix F – Declaration of Louis S. Tenenbaum



25315

PATENT TRADEMARK OFFICE



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan

Attorney Docket No. ADAP-1-1002

Serial No.: 09/881,856

Group Art Unit: 2859

Filing Date: June 13, 2001

Examiner: T. Reis

Title: SPACE CONFIGURATION DESIGN TOOL

SECOND DECLARATION UNDER 37 C.F.R. § 1.132 OF LOUIS S. TENENBAUM  
TO THE COMMISSIONER OF PATENTS:

I, Louis S. Tenenbaum, having an address at P.O. Box 60027, Potomac,  
5 Maryland 20859, pursuant to 37 C.F.R. § 1.132, hereby state as follows:

1. I have worked in the field of home modifications since 1988. For the past  
several years I have added speaking, training and writing about home modifications to my  
work. I taught all over the country for Rebuilding Together with Christmas in April under a  
grant from the U.S. Administration on Aging. I speak at conferences and seminars of  
10 professionals in the aging, health and construction industries. I write a column for  
HousingZone.com for professional remodelers working in home modifications. I make this  
declaration as an addendum to my January 25, 2004 declaration.

2. There are few specialized tools available for the designer of accessible  
environments or modifications. There are some standard product templates to use in  
15 drawings. The templates help see how design elements can be placed in a space. The  
templates are limited because they do not show how wheelchairs move through and amongst  
the space and the located design elements. More specifically, these tools are static in that the  
symbol is either cut out and attached to or drawn on a drawing. As a static symbol, no  
movement is shown. In addition, because they are two-dimensional, even if they were  
20 moveable, the visual impact would be minimal, at best. A two-dimensional template can only  
be used to mark or indicate a static location on a design plan, thereby providing architectural

25315

CUSTOMER NUMBER

- 1 -

ADAP-1-1002DEC10LT

BLACK LOWE & GRAHAM <sup>INC</sup>

701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301

scale and verifying clearances associated with the wheelchair at that location. However, such a static template does not visually illustrate the actual *movement* of a person using a wheelchair or other types of mobility equipment as it negotiates the space. As yet another drawback, using the templates as an overlay requires manual manipulation of the template, which obscures the visual movement being demonstrated.

3. A key to accessible design is the ability to picture and understand how a wheelchair is able to negotiate turns and spaces. This requires understanding the space the maneuvering wheelchair occupies in three dimensions—the height as well as length and width. It is not only the interface of the wheelchair on the floor that is important but the full height of the user in the environment. Wheelchair users occupy different amounts of space at different heights above the floor. The feet are widest, the knees next, then shoulders and the head. The space occupied by a spinning wheelchair has been compared to the space occupied by the layers of a wedding cake. Foot clearance needed in the space just above the floor is larger than the clearance needed for knees, and that larger than the space needed for shoulders. Evaluating a space for maneuvering has to occur at all levels. The floor space under a sink counter, for example, can accommodate feet, the space inside the drainpipe can accommodate the knees, while the counter itself bumps the wheelchair user at their lower chest cavity.

4. For the better part of the last twenty years, and certainly since the heightened interest nationwide in accessibility issues, there is a great need for design tools that can help the designer view three dimensional layout issues on a set of drawings. There has also been a need for tools that the designer can use to help clients and other non-designers to understand the issues in order to communicate the design and receive feedback. Despite the existence of static tools such as overlay templates (e.g., Bobrick), people in the industry were unable to create a tool that overcame the limitations described above with the static tools and meet the industry requirements for accessibility design.


5. I have had an opportunity to use a prototype of the Susan Duncan's Visualizer® Set tool. It is extremely valuable for resolving the design and communication issues described above including the ability to picture the maneuverability of a wheelchair through spatial layout and the interface of the height dimensions of a wheelchair and user with the height of items in the space. The Visualizer Set includes a three-dimensional member shaped as a human seated in a wheelchair. The member is scaled to allow accurate representation of the movement of the three-dimensional member within the spaces of known scale of a design plan. It further includes a three dimensional base extending downwardly and outwardly from the three-dimensional member, the base having a peripheral edge shaped to coincide with a scaled space envelope desired for movement of a wheelchair. It also includes a wand extending from the three-dimensional member used to move the tool along design plan paths.

6. Because of the specific features of the Visualizer tool described above, the tool fills the long recognized gap in the accessible environments designer's tool kit. This tool has value for the designer working in their office. It has value as a teaching tool to explain the issues to groups. It has value to communicate to clients and other non-design professionals about the issues as well as about the details of a particular design. In addition the very availability of the Visualizer Set tool will be notice to designers not yet familiar with these issues that the issues exist. Buying and using the tool will reveal the issues to a user.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of

Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.


Date: 8/11/05

  
Louis S. Tenenbaum

25315  
CUSTOMER NUMBER

- 4 -  
ADAP-1-10010EC/SLT

BLACK LOWE & GRAHAM<sup>INC</sup>

  
701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan

Attorney Docket No. ADAP-1-1002

Serial No.: 09/881,856

Group Art Unit: 2859

Filing Date: June 13, 2001

Examiner: T. Reis

Title: SPACE CONFIGURATION DESIGN TOOL

DECLARATION UNDER 37 C.F.R. § 1.132 OF LOUIS S. TENENBAUM  
TO THE COMMISSIONER OF PATENTS:

I, Louis S. Tenenbaum, having an address at P.O. Box 60027, Potomac,  
Maryland 20859, pursuant to 37 C.F.R. § 1.132, hereby state as follows:

1. I have worked in the field of home modifications since 1988. For the past several years I have added speaking, training and writing about home modifications to my work. I taught all over the country for Rebuilding Together with Christmas in April under a grant from the U.S. Administration on Aging. A copy of my CV is attached. I speak at conferences and seminars of professionals in the aging, health and construction industries. I write a column for HousingZone.com for professional remodelers working in home modifications.

2. My work involves design and planning for accessibility. The product of my work is enhanced independent function and safe care giving for people with disabilities. These results are achieved by changing the environment to make best use of the client's functional capabilities.

3. There are few specialized tools available for the designer of accessible environments or modifications. There are some standard product templates to use in drawings. The templates help see how design elements can be placed in a space. The templates are limited because they do not show how wheelchairs move through and amongst the space and the located design elements.

4. A key to accessible design is the ability to picture and understand how a wheelchair is able to negotiate turns and spaces. This requires understanding the space the maneuvering wheelchair occupies in three dimensions—the height as well as length and width. It is not only the interface of the wheelchair on the floor that is important but the full height of the user in the environment. Wheelchair users occupy different amounts of space at different heights above the floor. The feet are widest, the knees next, then shoulders and the head. The space occupied by a spinning wheelchair has been compared to the space occupied by the layers of a wedding cake. Foot clearance needed in the space just above the floor is larger than the clearance needed for knees, and that larger than the space needed for shoulders. Evaluating a space for maneuvering has to occur at all levels. The floor space under a sink counter, for example, can accommodate feet, the space inside the drainpipe can accommodate the knees, while the counter itself bumps the wheelchair user at their lower chest cavity.

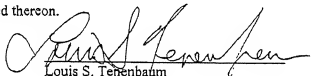
5. There is a great need for design tools that can help the designer view three dimensional layout issues on a set of drawings. There is also a need for tools that the designer can use to help clients and other non-designers to understand the issues in order to communicate the design and receive feedback. Many clients have limited experience with the medium of the design professional, traditionally including blueprint, scale and template.

6. I have had an opportunity to use a prototype of the Susan Duncan's Visualizer™ Set tool. It is extremely valuable for resolving the design and communication issues described above including the ability to picture the maneuverability of a wheelchair through spatial layout and the interface of the height dimensions of a wheelchair and user with the height of items in the space. In design work there are inevitably moments when experience and thoughtfulness do not fully inform the designer of the maneuverability afforded by a particular design. The Visualizer™ Set tool is an immediate assistance at overcoming these gaps.

7. The Visualizer™ Set tool fills a long recognized gap in the accessible environments designer's tool kit. This tool has value for the designer working in their office. It has value as a teaching tool to explain the issues to groups. It has value to communicate to clients and other non-design professionals about the issues as well as about the details of a particular design. In addition the very availability of the Visualizer™ Set tool will be notice to designers not yet familiar with these issues that the issues exist. Buying and using the tool will reveal the issues to a user.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.

15 Date: 1/25/04

  
Louis S. Tebenbaum

25315  
CUSTOMER NUMBER

- 3 -  
ADAP-1-1002DEC00LT

BLACK LOWE & GRAHAM <sup>LLC</sup>  
  
701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3900 • F: 206.381.3901

## Appendix G – Declaration of Rex J. Pace



25315

PATENT TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Susan M. Duncan Attorney Docket No. ADAP-1-1002  
Serial No.: 09/881,856 Group Art Unit: 2859  
Filing Date: June 13, 2001 Examiner: T. Reis  
Title: SPACE CONFIGURATION DESIGN TOOL

DECLARATION UNDER 37 C.F.R. § 1.132 OF REX J. PACE  
TO THE COMMISSIONER OF PATENTS:

I, Rex J. Pace, residing at 1021-107 Nicholwood Drive, Raleigh, North  
5 Carolina 27605, pursuant to 37 C.F.R. § 1.132, hereby state as follows:

1. I am an architectural designer, illustrator, and author with sixteen years  
experience in accessible design. I am the principle of Universal Design Solutions, LLC, a  
design consultancy that evaluates, develops, and promotes accessible and universal design in  
housing, commercial and public buildings, and related architectural products. Before  
10 founding Universal Design Solutions, LLC I was employed by two organizations recognized  
for their national and international leadership on Universal Design and accessibility issues:  
the Center for Universal Design and Barrier Free Environments, Inc. For approximately five  
years at the Center for Universal Design I was the coordinator of the Technical Assistance  
program, a lead designer and project manager. Prior to my employment at the Center,  
15 I worked at the nationally recognized consulting firm Barrier Free Environments, Inc. During  
my eight years there, I created many of the illustrations for which the firm's manuals are  
noted and worked on numerous accessibility survey and compliance projects. I graduated  
from the School of Design of North Carolina State University in 1987.

2. Presently most similar design tools are based on the "overlay" concept. These  
20 are "templates"—clear plastic sheets with various graphics of wheelchairs printed on them  
that can be laid on top of scaled drawings. The Bobrick overlay best exemplifies this type of

tool. Usually these types of templates are used to check drawings that have already been produced and are promoted as such. In a less similar way and in a different medium some computer aided design (CAD) programs allow the plan image of people using wheelchairs to be inserted or "pasted" into the actual construction drawing for reference.

5           3. I was personally involved in the development of the Bobrick overlay and artwork I created appears on the template. During that process I gained some insight into these issues. This Bobrick overlay serves its intended purpose well but should not be considered definitive as it does have some limitations. The principle limitation is its "static" nature in that it was not really designed to be moved over a drawing in a manner reflecting  
10 wheelchair maneuvering or paths of travel. This is apparent in the layout of such templates with multiple graphics at different scales included on a single sheet. Moving such templates over drawings in an effort to mimic wheelchair movements is cumbersome and creates a lot of distracting "visual" noise. Additionally there are really no handles, cutouts, or shaped edges which can be used to assist in moving the template across a horizontal surface. These  
15 layouts indicate the "reference sheet" approach rather than a dynamic movable model. Another limitation of this and all other similar tools that I am aware of are their exclusively two dimensional nature. As a result certain scale and spatial relationships are lost.

4. There has long been a need by professionals for a design tool that overcomes the limitations of existing tools describe above. In general good reference and design tools  
20 regarding design for people with disabilities in the built environment have been lacking. Particularly important are tools that can be use in the actual design process itself, ideally of an interactive nature. A tool specifically intended to be maneuvered across a drawing in a manner reflecting movements by people using wheelchairs provides extremely useful feedback in the development process whether it is in the initial concept stage or as a final  
25 check on a completed design. Such a tool would need to be designed to allow one to clearly see the drawing beneath, have an adequate handle or grip to move it, and offer a level of

modularity to accommodate different scales. I believe up until now such a device did not exist.

5 I have had the opportunity to use Susan Duncan's Visualizer™ Set and consider it effective in its intended purpose and successful in meeting a present need among  
5 design professionals. The Visualizer™ Set addresses the two most important features presently lacking in similar design tools addressed in the sections above: maneuverability and three-dimensional scale reference. The Visualizer™ Set will increase the awareness of the spatial needs of people using wheelchairs and similar mobility devices. Furthermore, it will help give insight into how these needs can be met and represents a step in supporting our  
10 broader society's commitment to rights of people with disabilities and equal opportunity for all. I think this tool is the most valuable for students. In this respect, the Visualizer™ Set scale three-dimensional representation of a figure in wheelchair is particularly important. It brings to life the design implications in a total way and not just at the plan level. Indeed the concept of scaled icon figures that can be used interactively in the design process may be  
15 useful for a host of different user groups of which people with disabilities are only one.

I hereby further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of  
20 Title 18 of the United States Code, and that willful false statements may jeopardize the validity of the application or any patent issued thereon.


Date: 1-25-03

  
Rex J. Paoc

25315  
CUSTOMER NUMBER

3  
ADAP-1-1002B000P

BLACK LOWE & GRAHAM <sup>INC</sup>

  
701 Fifth Avenue, Suite 4800  
Seattle, Washington 98104  
206.381.3300 • F: 206.381.3301